

Building a Strategic Plan for your Research Computing and Data Program

Abstract

This workshop will gather Research Computing and Data (RCD) professionals to learn leading practices for developing effective strategic plans for their Research Computing and Data programs. The workshop is open to RCD professionals who are familiar with issues around supporting Research Computing and Data, have experience contributing to strategic planning, and have some exposure to the RCD Capabilities Model. Attendees will hear the experiences of universities (Arizona State University, University of Nevada, Reno, University of Hawaii, plus one more) who are currently using the RCD Capabilities Model as part of their strategic planning work, including lessons learned. Attendees will discuss the range of RCD strategic planning models across the community, and approaches to building a strong strategic planning practice. Finally, participants will define requirements for a new effort to develop a shared community resource to support strategic planning for RCD, identifying potential elements of such a resource and a near-term roadmap for development. Workshop organizers will document the findings of the workshop in a report shared with the community.

Keywords: Research Computing and Data, Research IT, Strategic Planning, RCD Capabilities Model

Workshop Goals

Research is increasingly dependent upon Cyberinfrastructure (CI), from instruments and sensors to Research Computing and Data¹ (RCD) infrastructure and services. RCD is being used in new domains and is expanding beyond High Performance Computing (HPC) into secure computing; big data management; AI/machine learning; and into heterogeneous compute models, edge computing, and cloud-based computing. The rapid evolution and diversification of RCD poses significant challenges to academic institutions as they try to effectively assess and plan for the necessary resources required to keep pace with the growing needs of researchers. The lack of a shared vocabulary to describe the various aspects of RCD support traditionally hindered efforts to discuss and plan coordinated efforts to advance support of, and for, researchers. These challenges are especially acute for smaller and emerging RCD support organizations, which often lack experience supporting RCD and have limited resources to develop an analysis framework for strategic planning.

To address these gaps, a collaborative team within the RCD ecosystem developed a Research Computing and Data Capabilities Model (RCD CM)² that allows organizations to self-evaluate across a range of RCD services and capabilities for supporting research, leveraging a shared vocabulary to describe RCD support. The Model supports a range of stakeholders and provides structured input to guide strategic planning and enable benchmarking relative to peer institutions and/or to various segments of the community. The Model has drawn wide attention since the 1.0 release in January 2020.

This workshop will bring together Research Computing and Data professionals to learn leading practices for developing effective strategic plans for their Research Computing and Data programs. PEARC21 attendees interested in any of the areas of Workforce Development, Training, Diversity, and Education; Applications and Software: and/or Systems and System Software will come away with a better understanding of leading practices in strategic planning for RCD programs, how the RCD CM can be used as input to their strategic planning for these and other aspects of their RCD programs, and will gain

¹ “Research Computing and Data” (abbreviated as RCD) includes technology, services, and people supporting the needs of researchers and research, and is intended as a broad, inclusive term covering computing, data, networking, and software. The National Science Foundation uses the term “cyberinfrastructure,” and others use “Research IT.”

² Patrick Schmitz, Claire Mizumoto, John Hicks, Dana Brunson, Gail Krovitz, James Bottum, Joel Cutcher-Gershenfeld, Karen Wetzel, Thomas Cheatham. 2020. A Research Computing and Data Capabilities Model for Strategic Decision-Making. In Proceedings of Practice & Experience in Advanced Research Computing (PEARC20). ACM, New York, NY, USA, <https://dl.acm.org/doi/10.1145/3311790.3396643>

an appreciation for how other institutions approach this sort of strategic planning work.

The three key goals for this workshop are to:

1. **Share the experiences of universities** who are currently using the RCD Capabilities Model as part of their RCD strategic planning work, including lessons learned. We have confirmed speakers from Arizona State University, University of Nevada, Reno, and University of Hawaii and will invite a representative from one more university that has experience using the RCD CM in strategic planning work.
2. **Discuss the range of RCD strategic planning models** across the community, and identify approaches to building a strong strategic planning practice.
3. **Work towards the development of a shared community resource** to support strategic planning for RCD, identify potential elements of such a resource and a near-term roadmap for development.

This workshop builds upon earlier workshops that provided an introduction to the RCD Capabilities Model. While attendance at one of those is not a prerequisite for this, some familiarity with the Capabilities Model is expected (e.g., from exploration through the assessment tool, or by watching one of the webinars listed at <https://carcc.org/rcdcm/>). We will devote most of the workshop to the practices of strategic planning, and will not include a lengthy introduction to the RCD CM.

RCD Capabilities Model Usage to Date

The initial version of the RCD CM was developed as a collaboration among the Campus Research Computing Consortium (CaRCC)³, Internet2⁴, and EDUCAUSE⁵, with support from the National Science Foundation (NSF OAC-1620695) and from many volunteers who provided input and review from a diverse set of universities (large and small, public and private) and related organizations.

A few data points about current interest and usage of the 1.0 version of the model, which became publically available in January 2020:

- 128 institutions have requested a copy of the RCD CM Assessment tool, including 86 R1s (over half of all R1s in the U.S.) as well as 26 R2s, and various other institutions.
- **88% of these institutions indicated “Strategic Planning”** as an intended use of the tool.
- Institutions using the RCD CM represent 44 states and 2 Canadian Provinces, with a mix of public and private, R1, R2, and other Carnegie Classifications, and many EPSCoR-eligible and minority-serving institutions.
- The 2020 Community Dataset⁶ includes assessment data from 41 institutions and provides important insights into the state of support for RCD, at both a summary and more granular level.

The Assessment Tool also allows institutions to mark specific capabilities as *priorities*, usually as input into their strategic planning work. The aggregated priorities data in the Community Dataset provide insight into the areas in which institutions plan to place emphasis, devote resources, etc. Among the roughly 150 areas of capability in the RCD CM, institutions indicated these two among their top priorities (i.e., as areas for particular attention; the overall rank is in parentheses):

- **Does your Research Computing and Data (RCD) team/group have a strategic plan? (#5)**
- **Are Research Computing and Data services funded in a sustainable manner? (#2)**

In the report, EPSCoR-state institutions listed these as their *top two* priorities, and the third highest was:

- **To what extent is there a clear vision, effective guidance, and strategy for the allocation and prioritization of support resources/personnel?**

³ <https://carcc.org/>

⁴ <https://www.internet2.edu/>

⁵ <https://www.educause.edu/>

⁶ Patrick Schmitz. 2020. 2020 RCD CM Community Data report. <http://doi.org/10.5281/zenodo.4344057>

Clearly, there is a strong interest in, and need for, strategic planning support, especially among institutions with less research funding and/or with emerging RCD programs. This workshop will help institutions understand how to work from a self assessment (using the RCD CM) to develop a strategic plan for research computing and data.

Workshop Agenda, Format, and Results

This **half-day workshop** will be conducted online utilizing facilitated breakouts as well as larger group discussions. The workshop will be highly interactive, combining presentations from several universities that have used the RCD CM as part of their strategic planning work; breakout discussions exploring core issues and challenges with strategic planning; larger group discussions to identify and capture common themes; and finally, discussions to identify how the community can build shared resources to support RCD planning efforts across a diverse range of institutions. **Workshop organizers will capture the workshop input and document it in a report that will be made available to the community.**

Time	Activity
20 mins	Introductions and a <i>short</i> background presentation
40 mins	Invited presentations of experiences on several campuses using the RCD CM in strategic planning, followed by Q and A, and open discussion
15 mins	<i>Break</i>
40 mins	Breakout groups to explore and compare current Strategic Planning practices: <ol style="list-style-type: none"> 1. What is the current state/practice around strategic planning on your campus? 2. What are the elements of an effective strategic plan? 3. How can groups/leaders new to all this get started with strategic planning?
20 mins	Reports back and identification/discussion of common themes from Breakouts
15 mins	<i>Break</i>
30 mins	Breakout groups: How can we can build a shared resource to support strategic planning: <ol style="list-style-type: none"> 1. What elements of a shared resource would be most useful? 2. How do we support planning for both smaller and emerging centers, as well as for larger and more experienced centers? 3. What is the low-hanging-fruit, and what needs more work, community support?
20 mins	Reports back and identification/discussion of common themes from Breakouts
10 mins	Wrap-up discussion, next steps

Workshop Facilitators

Dana Brunson, Executive Director for Research Engagement, Internet2, dbrunson@internet2.edu
Doug Jennewein, Senior Director Research Technology, Arizona State University, djennewe@asu.edu
Claire Mizumoto, Director, Research IT Services, UC San Diego, claire@ucsd.edu
Patrick Schmitz, Principal Consultant, Semper Cogito, patrick@sempercogito.com
Scotty Strachan, Director of Cyberinfrastructure, University of Nevada, Reno, strachan@unr.edu

Target Audience

The target audience for this workshop is campus Research Computing and Data (computing, data, and related infrastructure and services) professionals and leaders who are involved in or are exploring strategic planning for their programs, and are interested in how to integrate the results of an RCD Capabilities Model assessment into their strategic planning process. Attendees at related introductory workshops have ranged from systems-facing professionals to research engagement staff to program

leaders; the discussion among this range of perspectives has been very productive. PEARC is distinct from other venues in bringing together many front-line practitioners as well as program leadership across a broad range of domains and disciplines; this workshop is well-suited to fostering discussion within this diverse community, helping us all to more effectively support research computing and data across a range of academic institutions.

Attendees' skill level: Attendees should be generally familiar with issues around supporting Research Computing and Data, have some exposure to the RCD Capabilities Model, and have experience contributing to strategic planning. Attendees need not be in leadership roles to contribute to the discussion, and people who are just beginning to prepare strategic plans, and/or who are in emerging RCD programs, are welcome.

Expected Attendance: Based upon community interest expressed at our related webinars and at previous PEARC workshops, we expect 40 to 60 attendees. Our format scales well from a smaller group up to the high end of that range, and we have sufficient facilitators to handle breakouts at this scale.

Recent offerings of related introductory workshops

In past years at PEARC and at EDUCAUSE, we held workshops that focused on the principles behind the RCD Capabilities Model, and how institutions could use the assessment tool. The 2021 workshop builds upon these, but emphasizes practice and experiences around **strategic planning** for RCD.

Half-day workshop at PEARC 2019:

<https://pearc19.conference-program.com/presentation/?id=work106&sess=sess127> Organizers: Patrick Schmitz, Gail Krovitz, Dana Brunson, Thomas Cheatham, Alex Feltus, Jill Gemmill, Galen Collier, John Hicks, Claire Mizumoto, Karen Wetzel. This workshop had 46 participants (with another dozen or so turned away due to room size limitations) from a range of schools across the country. The model received enthusiastic response and confirmation that it would be very useful in assessing their current state, understanding the state of their peers and the broader community, and as input to strategic planning. Workshop evaluations were strongly positive. Comments included:

"This may have been the most useful workshop I've been to regarding research."

"This was excellent—such a great intro."

"Clear and helpful facilitation of workshop."

Full day (paid) workshop at EDUCAUSE 2019:

<https://events.educause.edu/annual-conference/2019/agenda/leveraging-a-research-it-maturity-model-for-strategic-decisionmaking-separate-registration-is-require> Speakers: Dana Brunson, Gail Krovitz, Claire Mizumoto, Patrick Schmitz. Sixteen campus leaders participated in a deep dive into the details of the model and its use in strategic planning. Participants showed enthusiasm for the model and its potential (95% of the workshop evaluations were "Excellent"). Comments included:

"Best session ever! Thank you for all of your work and a great presentation."

"Great session with concrete take-aways."

"Great to leave the workshop with an actual tool to be used with campus leadership."

Full day workshop at PEARC 2020:

[Leveraging a Research Computing and Data Capabilities Model for Strategic Decision-Making \(https://sched.co/cnY9j\)](https://sched.co/cnY9j) Organizers: Patrick Schmitz, Dana Brunson, Gail Krovitz, Thomas Cheatham, Claire Mizumoto. This workshop had 60 registered participants, and again evaluations were strongly positive. Comments included:

"Fantastic workshop and excellent tool/model! Very excited to move this forward for [our institution]."

"Thanks, this is valuable, and please continue the great work!"

"It was a great introduction to the model."